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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/782,763	02/23/2004	Shinji Fujii	249151US2S	7648
22850	7590	10/05/2004	EXAMINER	
OBLON, SPIVAK, MCCLELLAND, MAIER & NEUSTADT, P.C. 1940 DUKE STREET ALEXANDRIA, VA 22314			ABRAHAM, FETSUM	
			ART UNIT	PAPER NUMBER
			2826	

DATE MAILED: 10/05/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/782,763

Applicant(s)

FUJII, SHINJI

Examiner

Fetsum Abraham

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE ____ MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date ____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: ____.

DETAILED ACTION

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 4,5,7-13,15,16, are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The expression said damage region included in the lower wiring layer and "corresponding to the dummy via..." is not clearly understood in view of the fact that the dummy via is located remotely from the lower wiring layer. It is not clear how said damaged region and said dummy are positionally related vis-à-vis said lower wiring layer.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-3,6,14,17-20 is rejected under 35 U.S.C. 103(a) as being unpatentable over Miyamoto et al (6,670,714).

As for claims 1,3, the patent discloses a cu-interconnect based semiconductor multi-wiring structure in figure 5(D), the wiring formed on a substrate (11) and having at least two layers of wiring (17,19,21,22) formed inside a composite interlayer insulation layers (16,18,20) and characterized by lower wiring layer in contact with the source/drain region of the associated transistor, a via buried in the interlayer insulation

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layer filled with a conductive material (17) and connecting the lower wiring layer adjacent the source/drain region to the upper wiring layer (19,21,22) and dummy vias buried in the interlayer insulation later in the left side of the multi-layered wiring and filled with a conducting material but not in connected to the multi-wiring structure.

Although the prior art omits to categorize the conductor filled vias in extreme left side of the active multi-layered wiring structure as "dummy", it would have been obvious to one skilled in the art to classify them as such since they is structurally similar to the dummy via in the claimed invention and their filled conducting materials are floating with no substantial effect on the overall wiring structure.

As for claim 2, the dummy vias are buried in the interlayer insulation layer and located between a dummy wiring layer at the extreme left side of the active multi-layered wiring structure and the lower wiring layer.

As for claim 6, considering the lower wiring to be layers (17 and 19), the structural limitation of the wiring in the claim is met.

As for claims 14,20, the narrow width lower wiring layer is layer (17) and the wide width lower wiring layer is layer (19) and the conductor in the via connecting the composite lower layer to the upper most wiring layer is layer (21).

As for claim 17, the vias are all structurally substantially similar except for height differences.

As for claim 18, there is no physical connection between the active via and the dummy vias in the prior art structure and all the vias are filled with conducting materials.

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As for claim 19, there are other dummy vias on the upper most layer of the structure that are formed on the same layer of the upper most wiring layer.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Fetsum Abraham whose telephone number is: 571-272-1911. The examiner can normally be reached on 8:00 - 18:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nathan J Flynn can be reached on 571-272-1915.

Fetsum Abraham

9/24/04